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ABSTRACT

An investigation was designed to explore a systematic notetaking procedure for deaf students on secondary and post-secondary educational levels. Conducted in two phases, the study aimed at developing a system of notetaking including a special notebook (consisting of pressure sensitive duplicating paper), and describing notetaking procedures of hearing undergraduate students; and evaluating the notetaking system relative to the willingness of hearing students to participate and the expressed satisfaction of deaf students with its procedures. In both phases, the system was evaluated by deaf and hearing participants, who completed appropriate questionnaires. Analysis of the data indicated the general feasibility of the notetaking system. Hearing students in general were willing to volunteer as notetakers for the deaf, and most deaf students expressed some satisfaction with the system. The study produced workable guidelines on notetaking for the deaf student, his instructor, and the hearing notetaker. (JB)

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A Notetaking Procedure For Deaf Students In Regular Classes

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**A Notetaking Procedure For Deaf Students
In Regular Classes**

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**This procedure was developed in the course of an
agreement with the U.S. Department of Health,
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Preface

This paper represents the first of a series of inquiries into a number of services offered deaf students enrolled in NTID-supported programs at Rochester Institute of Technology.

The success of the notetaking procedure described in the following pages depends upon a faculty committed to the process of education, whether it be for hearing or for deaf students, and to a student body accepting of fellow students who are handicapped by deafness but who share the same quest for knowledge and skill.

Appreciation is expressed to the faculty and students of Rochester Institute of Technology and of the J. F. Rhodes Secondary School of Cleveland, Ohio, who have and who continue to assist the deaf student by assuring that he has class notes. The support of the NTID staff who consulted and expedited this procedure is also gratefully acknowledged.

We are particularly indebted to Mr. James C. Cummings, Supervisor of RIT's General Duplicating Service, and to Frank Argento, Director of RIT's Instructional Resource Lab, for their contributions to the design of the notebooks.

In this age of advanced technology in communications and in education, we continue to rely on the clipboard and three-ring binder for organizing and preserving information. The following procedure should assist the deaf student in a classroom setting with hearing classmates to participate more fully in this educational technique.

E. Ross Stuckless

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1 Background

¹More than one method was indicated by respondents to the questionnaire.

(a) Introduction

Approximately 40,000 deaf students are enrolled in special educational programs in the United States (Doctor, 1968). Many others, while deaf, are enrolled in regular elementary, secondary, and post-secondary programs designed primarily for hearing students.

A recent investigation by Quigley, Jenne, and Phillips, (1968) led to the identification of 690 deaf adults who had attended regular colleges and universities. Many of these people had been notably successful in their pursuit of higher education with little or no special assistance. An implication drawn by Quigley and his colleagues was:

"It would seem reasonable to assume that the provision of some special services, such as are available in many instances to students with other types of disabilities, would make it possible for greater numbers of deaf persons to achieve similar success in higher education" (p. 160).

Educators of the deaf are in general agreement that deaf students, whether young children or adults, should be encouraged to participate in regular educational programs with hearing peers if they can keep pace. Unfortunately, the severe educational handicap imposed by deafness makes it extremely difficult for most deaf students to do so without special assistance.

Numerous school districts, colleges, and universities, including Rochester Institute of Technology through the National Technical Institute for the Deaf (Second Annual Report of NTID, 1969) are providing special support services designed to facilitate the deaf student's participation in regular educational programs. These services vary from program to program and may include such provisions as special counseling, speech therapy, and interpreting.

A particular problem encountered by many deaf students in classes with hearing peers, particularly at the secondary and post-secondary levels, is the difficulty of taking notes. Deaf students, like their hearing peers, are expected to prepare for examinations and regular assignments. Good notes are as important to the deaf student as to his hearing classmates for these purposes.

Quigley *et al* (1968) reported how deaf graduates of regular colleges and universities take notes. Of 184 graduates, 36 percent

reported that they took their own notes, 82 percent indicated that they borrowed notes, 28 percent that they asked someone to take notes for them, 19 percent that they asked the instructor for the use of his notes, and 15 percent that they did not take notes.¹

It would be difficult to determine the relative value of each of these methods for each deaf student in each course. It is probable that the method of acquiring notes among these deaf college graduates was for the most part left to their own resourcefulness and to the good will of the instructor and fellow students.

It was the intent of the present study to develop and evaluate a systematic notetaking process for deaf students which they and their instructors might accept, reject, or adapt to their own circumstances. Attention was directed to the notetaking needs of the deaf student in classes with hearing peers at both the secondary and postsecondary levels. The report of this activity follows.

(b) The Rationale for Notetaking

As students enter secondary level educational programs, they are increasingly expected to maintain class notes. At the post-secondary level, conventional teaching style includes a great deal of didactic presentation. The instructor lectures, the student listens and takes notes.

It is generally assumed, by instructor and student alike, that notes contribute substantially to the learning process. Two major values are attributed to notetaking; (i) the act of taking notes forces a student to attend fully to the instructor, thereby contributing to learning; (ii) notes are an important means of recalling information, as in reviewing for an examination. Yet in spite of the great importance attached to notetaking, the process has received very little critical attention. A search of the last ten years of *Education Index* disclosed only nine salient references, of which only two presented research findings.

Does the act of notetaking directly contribute to (or detract from) the student's immediate learning within a lecture? Evidence suggests that notetaking has no bearing on learning during a lecture. McClendon (1958) studied the effect of notetaking on the listening comprehension of college freshmen. An audiotaped lecture on speech and speech delivery was presented to 36 classes, totalling 678 subjects. Nine classes were not permitted to take notes. Nine classes took notes on the lecture's

main points only. Nine recorded main points and as much detail as possible. Nine were asked to take notes in their usual manner. All the notes were collected immediately after each class. Students were tested twice, directly following the lecture to determine immediate recall, and five weeks later to determine delayed recall. No differences were found among the 36 classes in terms of immediate recall. Similarly, no differences were found among the 36 classes on delayed recall. These findings suggest that note-taking neither contributes to, nor detracts from, immediate or delayed recall, on a listening comprehension task.

A second study tested the hypothesis that taking notes during a lecture is a less effective method of retaining lecture material than listening to that lecture and taking notes immediately afterward. This study, conducted by Eisner and Rohde (1959) had as its basis some earlier work done by Spitzer (1939) and by Gates (1917), both of whom had suggested that the attempt at immediate recall (taking notes immediately after instead of during a lecture) improved retention. Eisner and Rohde divided a college class in English Literature, consisting of 60 students, into two groups. Group I and Group II were presented with a lecture. Group I was instructed to take notes. Group II was instructed not to take notes. For 15 minutes immediately following the lecture, Group I was instructed to review its notes, while Group II was instructed to prepare notes on the lecture just given. Fifteen minutes later, the notes were removed from the two groups and a test was administered. Four weeks later, a lecture was presented on a different topic, and the procedures for Groups I and II were reversed. Again a test was administered 15 minutes after the lecture to both groups. No significant differences in test results were found despite the "simultaneous" and "delayed" notetaking procedures.

These findings, together with those of McClendon, lend support to the conclusion that the act of notetaking in and of itself during class has no bearing on the student's immediate or delayed recall of the information presented during that class.

A remaining rationale for notetaking is to facilitate the recall of information as a reference source, e.g., for homework assignments and for review purposes in studying.

(c) Suggestions from the Literature

Many secondary level English textbooks contain suggestions to students on notetaking. Numerous articles have been written

for teachers on how to improve notetaking skills among students. Williams (1962) suggests that students should perceive a lecture like a chapter in a textbook. The subject of a lecture should be recorded just as a chapter would be given a topic. A lecture probably contains four or more major subheadings. The student has the task to identify these subheadings even though the instructor does not explicitly specify what they are. Williams provides suggestions as to cues the student can receive from the instructor on how to structure notes on a given lecture. He states, "Success (in notetaking) lies in listening much, writing some, and in thoughtfully reworking your notes while they are fresh" (1962,p.78).

Sykes (1965) directed her attention to hearing students taking notes for deaf students in the same class. She suggests that hearing notetakers observe the following practices so the deaf student will find value in the notes: (i) date all notes, (ii) record all information about assignments, e.g., dates due, (iii) elaborate as much as possible within the notes, particularly with definitions of words, phrases, and concepts, (iv) if not certain of the point an instructor is making, ask for clarification, since it is unlikely that the deaf student got the point either, (v) ask authorities on deafness (e.g., the speech therapist) for suggestions on how to make the notes useful for the deaf student.

A number of articles have been written for teachers, suggesting how they can help students take better notes. Whitworth (1966) recommends what he calls an "inductive" approach. Woodhouse (1967), like Whitworth, recommends use of audiotape to teach notetaking skills. As the audiotape is played, the instructor prepares notes on the chalkboard, demonstrating to the students how notes ought to be organized. Pribnow (1963) recommends the use of lecture outlines, mimeographed and distributed to the class, to aid students in taking mathematics and science notes at the secondary level.

Malkan (1962) classified various ways in which instructors may structure the notetaking activities of their students. The first is what he terms "random notes". Many instructors do not consider it part of their task to assist students in organizing their notes, assuming that their students already are adequate in taking useful notes. A second approach Malkan calls "teacher-duplicated outlines". The instructor duplicates a class outline, distributing this to his students before the class begins. A third technique he calls "teacher highlighting of the lesson". Typically, the instructor outlines the lecture or lesson on the chalkboard before the

class begins. A fourth technique is a variation on the third, in which the instructor outlines on the chalkboard as the lesson proceeds. Malkan concludes with the following statement:

"In the final analysis, it makes little difference which method of notetaking you encourage. As long as your students leave your classes with some form of meaningful notes, you can be sure that your program will be enhanced" (pp 33-34).

(d) Relevance to Hearing Impaired Students

The student with intact hearing may attend to an instructor both visually and through listening. He may remain aware of what is being said while at the same time he gives his visual attention to his notes. The deaf student, on the other hand, must maintain visual contact with the instructor or, in some instances, with a manual interpreter who is interpreting the instructor's comments, in order to remain abreast of the presentation. Notetaking for the most part becomes an unacceptable distraction, causing the student to lose segments of the lecture.

Whether the hearing impaired student relies on auditory amplification, speechreading, reading manual communication, or a combination of these, he is unlikely to receive an "intact message" from the instructor. Amplification does not assure that the student hears exactly what is being said; speechreading is not a precise method of receiving communication, even for the most skilled speechreader; manual communication involves translating from English into another language system. Accordingly, notes represent a form of compensation for the deaf student. He is dependent upon notes to provide him with what he may have missed during the lecture.

Deaf students taking courses with hearing peers tend to rely heavily on outside assigned readings. The classroom instruction may have secondary value. Some instructors offer deaf students the use of the notes from which they lecture. Some deaf students are fortunate to be in a class where detailed course outlines are distributed to all the students.

One technique for gathering notes used by many deaf students involves asking a hearing peer to put carbon paper under his notepaper, giving the carbon copy of each page to the deaf student after class. Another technique which has merit involves making photocopies of the hearing student's notes. Unfortun-

ately, photocopies are not often immediately available to students. Coin-operated photocopiers represent an expense and often are not immediately accessible.

The object of notetaking, whether for the deaf or the hearing student, is to provide him with reference material to help him recall information, information important in preparing assignments, and in reviewing. That there may be more efficient and effective means to assist the student in recalling information is quite likely. However, such speculation is beyond the scope of this particular study.

2 The Problem

(a) Statement of the Problem

Many severely hearing impaired students attend regular secondary and post-secondary educational settings designed basically for hearing students. Their hearing impairment poses major educational problems for these students.

One difficulty for the students within these instructional settings is accumulating notes which are useful both for review purposes, and as compensation for the instructional content which they have missed during the actual class period.

A systematic notetaking procedure, while not a panacea, should offer some assistance to the deaf and severely hard-of-hearing student who is absorbed into the educational mainstream. This investigation was designed to shed light on this problem and to assess a specific procedure.

(b) Objectives of the Study

The study was conducted in two phases.

The objectives of Phase I were:

- (i) to develop a system of notetaking for deaf students, including a special notebook.
- (ii) to describe notetaking procedures generally followed by hearing undergraduate students.

The objectives of Phase II were:

- (iii) to evaluate the notetaking system relative to the willingness of hearing students to participate,
- (iv) to evaluate the notetaking system relative to expressed satisfaction of deaf students with its procedures.

3 Phase One

(a) The Setting

Three student populations in two educational settings were employed in the two phases of this investigation.

The first setting was the Rochester Institute of Technology in Rochester, New York. RIT has a full time student population of approximately 4,000 students. RIT is the parent institution of the National Technical Institute for the Deaf, a federally supported program.

Many of the deaf students share courses, instructors, and classes with their hearing peers. One task of NTID is to provide support services to these deaf students so they can take full advantage of the educational opportunities RIT already affords its hearing students.

Early in 1968, two NTID educational specialists¹ and the principal investigator met to discuss the need to provide deaf students sharing classes with hearing students at RIT with daily lecture notes. It was evident that attention should be given to developing a system of notetaking for deaf students, that an effort should be made to describe notetaking procedures of hearing students, and that guidelines should be developed to assist the hearing student in taking useful notes both for himself and for his deaf classmate.

(b) The Prototype NTID Notebook

The intended function of the notebook was to provide a convenient means for a hearing student to take lecture notes and assignments in duplicate or triplicate, retaining the original copy for himself and sharing a duplicate copy with a deaf classmate.

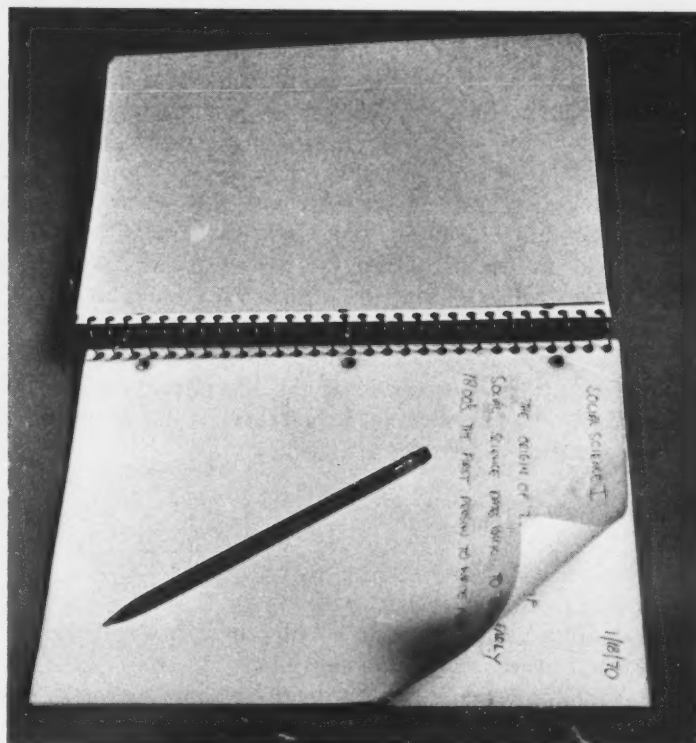
A notebook containing 200 blank white sheets of pressure-sensitive paper was produced.² Each sheet was punched so it could be removed and placed in a three-ring notebook. The dimensions of the paper were a standard 8½ X 11 inches.

The notebook was bound along the left edge with metal spiral binding. The front and back covers were of heavy cardboard. The back cover contained a flap which extended back over pages of the notebook. This flap was placed under the last page to be copied. Since the flap was constructed of the same heavy cardboard as the covers, it kept the impression of a ballpoint pen from reproducing more than the desired number of copies.³

¹Mr. Robert Panara, Mr. John Seidel. Each of the degree programs at RIT in which deaf students are enrolled has an educational specialist whose task it is to assist the deaf students registered in that program. Duties of the educational specialist include supervising support services, consulting with faculty, and counseling deaf students within the program.

²Pressure sensitive paper is chemically impregnated paper which permits multiple copies to be made from the original. One side only of the paper is used. The principle is similar to that for making carbon copies, but no carbon inserts are required. This paper is manufactured by National Cash Register Co.

³Two improved versions of the NTID notebook are described in greater detail in a later section of this report.



(c) Procedure Followed in Phase I

A total of 36 hearing students in 13 classes participated in Phase I. In most cases, two students were selected from each of the 13 classes. These classes were drawn from the RIT Colleges of Business and General Studies.

Two NTID educational specialists met with each of the 13 instructors of the 13 courses to describe the purpose and details of this phase of the study.

On the first day of classes in the Spring Quarter of 1968, the educational specialists were allotted five minutes to talk to the students in each class. Volunteer student notetakers were recruited. These volunteers turned over their notes after the first lecture to the instructor and educational specialist who in turn selected from each class the two sets of notes which best met certain specified criteria. These criteria proved to be similar to those later specified by the hearing students themselves (see "Hearing Students' Criteria for Good Notes").

On the basis of these criteria, 36 students were selected for the field study. The notebooks were explained and distributed to the 36 students. These students used the notebooks for a two to three week period. They made originals and one copy of their notes, keeping the originals and giving the copies to the educational specialists.

At the end of this period, questionnaires were distributed to the students. Twenty-nine of the 36 participating students completed and returned the questionnaires. The 36 students were also invited to a meeting to discuss the notebook and the note-taking procedures being considered to assist deaf students in the fall.

(d) Evaluation of the Prototype Notebook

Responses of the students to questions related to the quality and convenience of the prototype notebook are indicated in Table 1.

Table 1. Student responses to questions about prototype notebook

	Yes	No	Total
1. Was the notebook convenient to use?	18	11	29
2. Were your notes legible on the special paper?	26	3	29
3. Did the notebook stand up?	18	9	27

A number of suggestions for improving the notebook were presented by the students. These suggestions included the following:

- (i) the covers should be more firmly attached to the binding,
- (ii) pages should be lined,
- (iii) the notebook should be less bulky,
- (iv) it should be easier to remove pages (duplicate copies) from the notebook,
- (v) the notebook should be made more convenient for left-handed notetakers to use,
- (vi) a looseleaf format would be preferred by some hearing students.

Each of these suggestions was later incorporated into the revised notebooks (see Chapter IV).

(e) Procedures Generally Followed by Hearing Students in Taking Notes

Students were asked by questionnaire to provide information on procedures they generally follow in taking notes.

Of 29 students responding, 17 indicated they generally use a spiral bound notebook for notetaking, while 11 indicated they favor a looseleaf binder.

The students were asked to describe certain characteristics in their notetaking. Table 2 indicates their responses to a number of questions.

Table 2. Characteristics of note-taking among hearing students

	Number
1. When I take notes, I try to:	
(i) record the lecture word for word	2
(ii) select the most important points only	25
2. When I take notes I tend to:	
(i) write full sentences	12
(ii) write words and phrases only	15
3. After class, I usually recopy or type my notes:	
(i) yes	4
(ii) no	23
4. I usually write the questions asked by instructors or students, and the answers given:	
(i) yes	10
(ii) no	13

Students were asked to indicate the primary reason why they take notes. They were given three possible choices on the questionnaire. Of 26 responding students, 17 stated that taking notes helps them sort out the most important points of a lecture, 7 stated that their primary reason for notetaking is to help them prepare for examinations, and 2 stated that taking notes forces them to keep their attention focused on the lecture.

Each student was asked whether he considers himself a good notetaker. All 27 students who responded to this item answered in the affirmative. A related question asked whether students would find it helpful if, as beginning freshmen, they would have received one hour of instruction on how to take useful notes. Of the 28 students who responded to this item, 9 stated that such instruction would have been helpful and 19 that such instruction would not have been helpful to them.

(f) Hearing Student's Criteria for Good Notes

The 36 hearing students were invited to respond on the questionnaire to the following request:

What constitutes good notetaking in general?

Please list qualities of good notes.

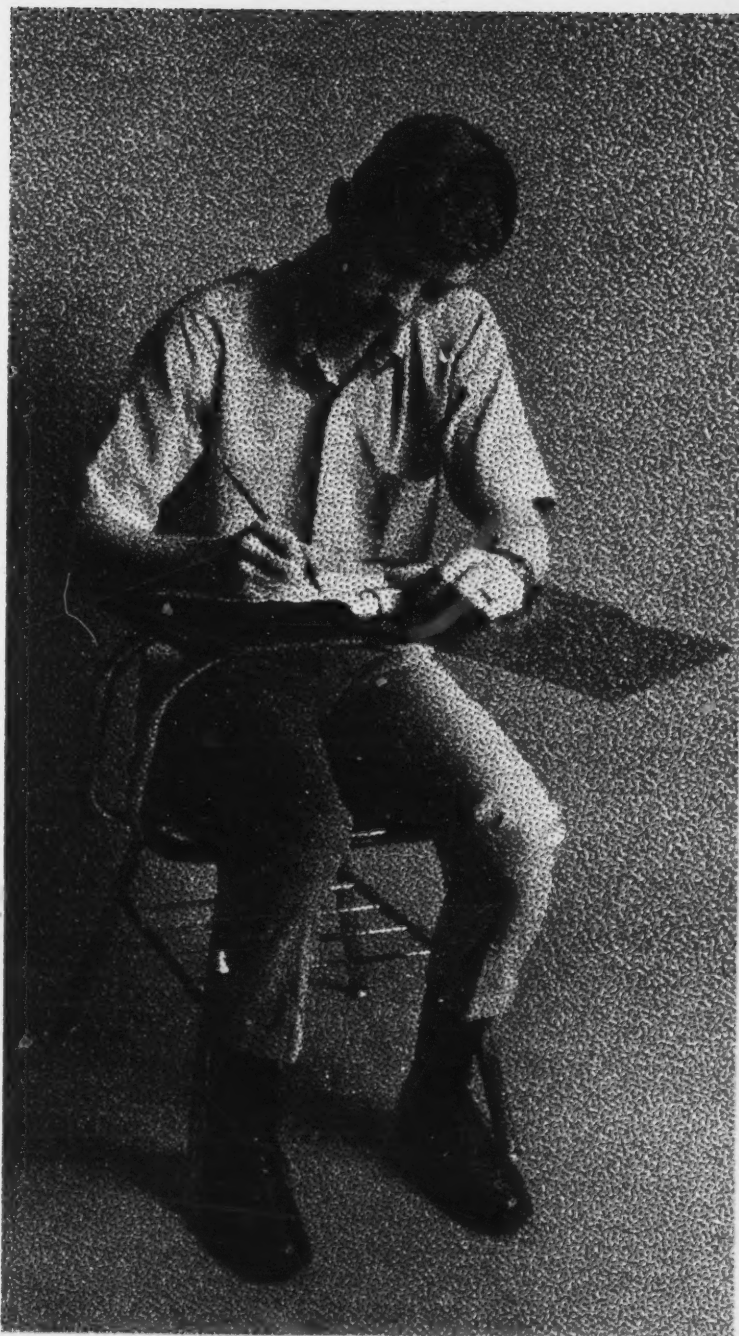
The 29 students responding to this item organized their comments into nine categories. There was little disagreement among the responses except that some students emphasized the need for completeness, while others considered conciseness more important.

These nine categories follow. They are repeated in Appendix B.

- (i) Identify and record all the principal points made by the instructor.
- (ii) Determine which are secondary and which are incidental points in the lecture. Record the secondary points.
- (iii) Organize the note content in logical sequence. Use headings and subheadings where possible.
- (iv) Write in sufficient detail so that the notes have meaning without the need for additional explanation.
- (v) Define difficult concepts and unfamiliar key words.
- (vi) Take notes as accurately as possible.
- (vii) Record all references and assignments in detail.
- (viii) Date the first page of the notes. Number each page.
- (ix) Take legible notes.

These criteria, suggested by hearing students, are quite similar to those which had been prepared by the principal investigator and the educational specialists when the participants in Phase I of the study were first selected. It should be noted that since the notetakers were originally screened by these criteria their responses were not likely to be fully representative of hearing students at RIT.

The one difference related to the question of the relative importance of completeness and conciseness in notetaking. There was some disagreement on this point among the students. Within a regular classroom setting, the deaf student is usually penalized by his inability to hear the instructor and other students, and as a consequence, detailed notes are likely to be of more assistance to the deaf student than to his hearing peer.



(g) Salient Findings of Phase I

This phase of the study revealed considerable information which was incorporated into the notetaking procedure which was subsequently field tested with both deaf and hearing students (see Chapter IV). Responses of the hearing students suggested a number of improvements which could be made on the notebooks. For example, it was determined that while many students prefer a spiral bound notebook, a considerable number of students favor a ring binder.

Students characteristically reported that they do not take notes verbatim, but selectively. They are approximately equally divided in using full sentences and in writing words and phrases only. Most do not rewrite their notes after class. Approximately one-half of the notetakers attempt to record questions and answers presented in class. This information suggests that in taking notes, hearing students do not attempt to record the entire lecture content, but merely extrapolate the most salient elements of the lecture.

It was of special interest to find that most students take notes primarily to assist in isolating the most important points of a lecture, rather than to help prepare for an examination. This rationale is not supported by research evidence.

It was of special interest to find that most students take notes primarily to assist in isolating the most important points of a lecture, rather than to help prepare for an examination. This rationale is not supported by research evidence.

Every student participating in Phase I considered himself to be a good notetaker. Either those who volunteered to participate in this phase did so at least in part on the basis of their being good notetakers, or students generally tend to overestimate their notetaking skills. It was noted that few students would welcome additional instruction in notetaking.

Of major importance were the nine criteria for good notetaking expressed by hearing students. For the most part, these criteria were congruent with the criteria suggested by the principal investigator and the NTID educational specialists to assist hearing students in taking good notes for deaf students. With one exception, the principles of good notetaking for hearing students seem to be appropriate also for the deaf student who uses the hearing student's notes.

The one difference centers on the amount of desired detail recorded in the notes. The hearing student who takes notes for

deaf students should take notes in more detail than he might do if he were not sharing his notes with a deaf student.

4 Phase Two

(a) The Settings

The second phase was deferred until 70 deaf students were admitted under NTID auspices to RIT in September, 1968. RIT was one of two settings used within Phase II.

The second setting was the James Ford Rhodes Secondary School in Cleveland, Ohio. This school serves approximately 1700 secondary level students among whom are 15 deaf students. All these deaf students take most or all their instruction from regular instructors and in regular classes. A full-time teacher of the deaf has also been assigned to the school.

(b) The Revised Notebooks

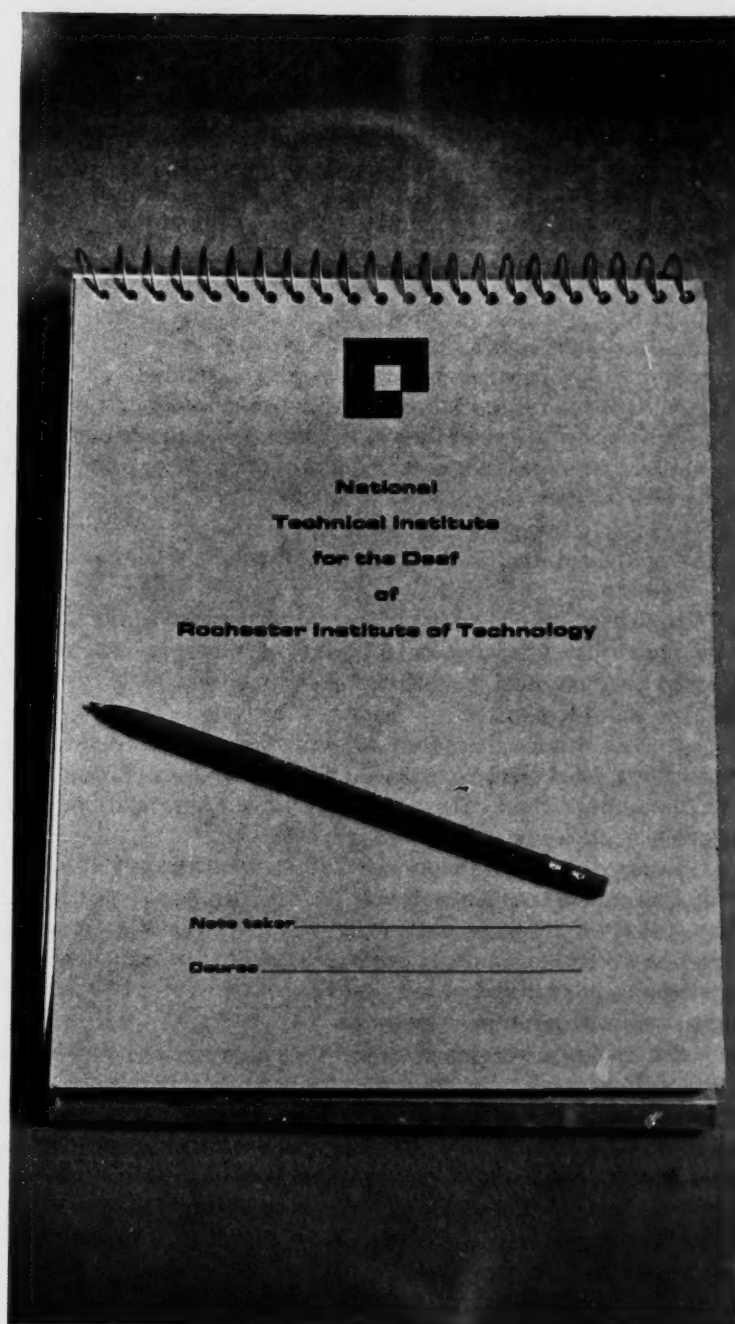
Based upon the hearing students' evaluations of the notebook tested during Phase I, several revisions were made.

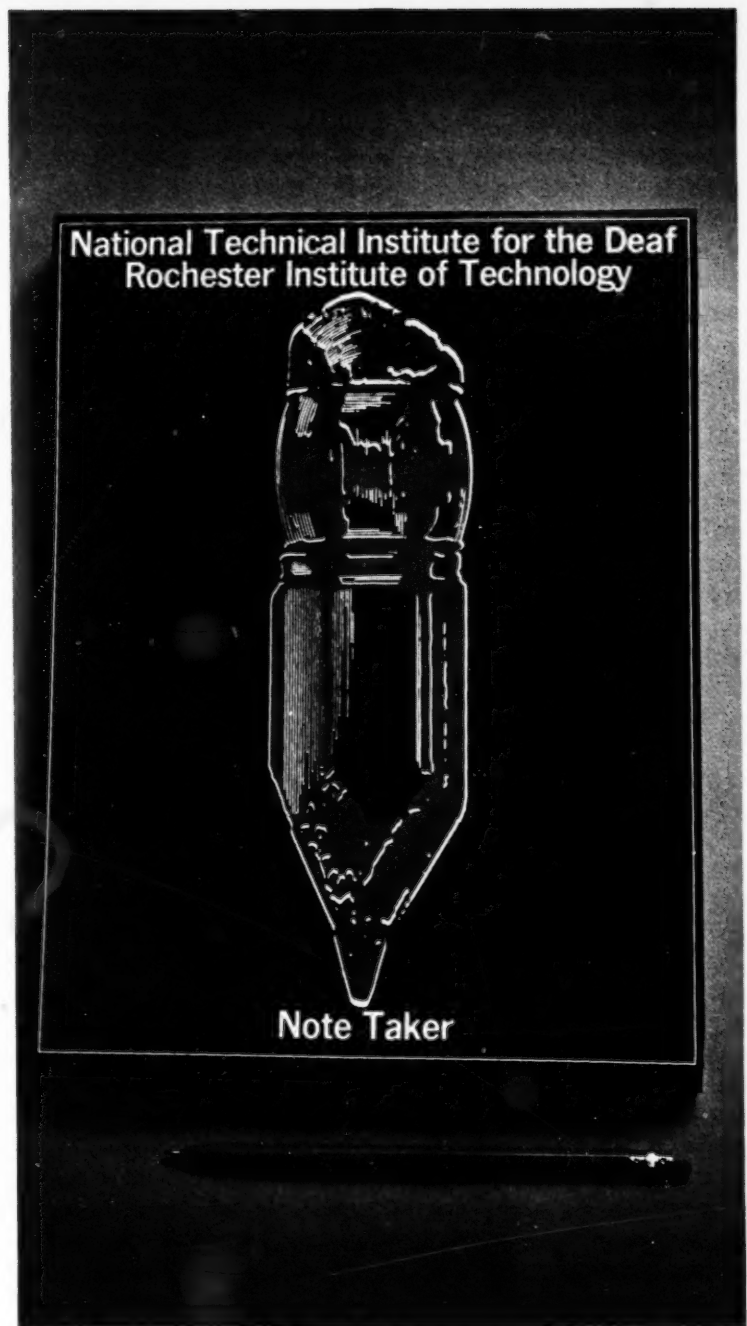
Two types of notebooks were produced. The first continued to be spiral bound. However, the binding was placed along the top edge of the book, with a rear flap extending up from the bottom of the rear cover. A lighter edging was used to facilitate removal of individual pages.

The pages were again punched along the left hand column in order to be readily transferred to a three ring looseleaf binder. Unlike the prototype, the pages of this notebook were lined.

Because so many students prefer a looseleaf format, a second notebook was produced. This looseleaf notebook featured a heavy vinyl cover, with two snap rings at the top. Like the spiral bound notebook, this binder had a rear flap which extended up under the front cover. This looseleaf format also permitted a student to carry less than 200 sheets of paper at a time. It also represented an economy if students could reuse the looseleaf binder.

Two types of paper were used. One was similar to that employed in Phase I (a chemical pressure-sensitive paper described in Chapter III). However, a second type of paper was also tested. This paper had a carbon backing on each sheet. Unlike most carbonized paper, this paper was guaranteed not to smudge.





¹Several responded to this item who had not responded to (b) of the previous item.

²It is possible that some of those who did not return the questionnaire would have indicated an unwillingness to participate again.

(c) The Notetaking System

Each class in which one or more deaf students were registered during the fall, 1968 quarter was approached by an educational specialist or instructor during the first class meeting with a request for volunteers to take notes for the deaf students in that class throughout the course.

Considerable latitude was provided in the selection of hearing notetakers. In some instances, there were enough volunteers that they could be screened. In other instances, particularly where several deaf students were in attendance, it was not possible to provide more than one hearing notetaker for each deaf student.

Where possible, two hearing notetakers were selected for each deaf student. This enabled the two hearing notetakers to provide each other with sets of their notes as well as two full sets to each deaf student. This had particular value for two reasons; first, the deaf student had two sets of notes to which to refer; second, if one of his notetakers was not in attendance, he could still depend on the second set.

At the end of each lecture, the hearing student gave the first copy of his notes to the deaf student, keeping the original in his notebook, and if he had a fellow hearing notetaker, exchanging a duplicate set of notes with that student.

This procedure was followed both at RIT and at the Rhodes Secondary School in Cleveland, Ohio. At the Rhodes School, the system was followed for approximately four months, at RIT for one full quarter.

(d) Evaluation of the System by Hearing Notetakers

Unfortunately, it was not possible to determine the precise number of hearing students who participated in either setting as a notetaker. In many cases, it was established that the same student took notes for deaf students in several classes, and in other cases, a single hearing notetaker took notes for several deaf students.

An effort was made to locate as many notetakers as possible in order that they complete a questionnaire. A total of 91 questionnaires were mailed to hearing notetakers at RIT. Questionnaires were returned by a total of 46 hearing notetakers at RIT, representing a 50 percent return, and by 14 hearing notetakers at the Rhodes Secondary School. The number of hearing

notetakers at the Rhodes School could not be determined, and since the questionnaires were sent to the school in bulk, no information is available on the percentage of returns.

Students were asked to indicate whether they volunteered or were requested to take notes for their deaf classmates, and if they were requested to do so, whether by the instructor or by the deaf student. Table 3 presents information on this item.

	RIT	Student Rhodes	Total
Did you volunteer or were you asked to take notes for a deaf student?			
(a) volunteered	37	5	42
(b) asked to	8	9	17
If "asked to" by whom?			
(a) Instructor	12 ¹	7	19
(b) Deaf Student	3	2	5

The instructors of students at the college level apparently depended more upon volunteers than did the secondary teachers in obtaining notetakers. Among the students who indicated they were asked to take notes, most indicated that the instructor rather than the deaf student made the request.

The hearing students were asked two questions designed to determine their feelings about cooperating in the notetaking process. Table 4 reports the results of these two questions.

	RIT	Student Rhodes	Total
How do you feel about taking notes for a deaf classmate?			
(a) No problem, glad to do it	35	13	48
(b) Rather not, but willing to do it again	7	1	8
(c) Unwilling to do it again after this term	0	0	0
Do you feel your service is appreciated by the deaf student?			
(a) yes	42	14	56
(b) no	7	0	7

It is evident from the response to the first question that the large majority of hearing students who initially agree to take notes for a deaf classmate are quite satisfied to do so, and that even where they would prefer not to do it again, they are prepared to provide assistance again.

Apparently most of the hearing notetakers also feel that their services are appreciated by the deaf student.

The hearing notetakers were asked to comment on the convenience of the notebook. Approximately half had used each of the two forms of the notebook. Table 5 indicates their responses to this question.

Table 5. Convenience of Notebook			
Do you find the notebook entirely convenient to use?	RIT	Student Rhodes	Total
(a) Yes	33	9	42
(b) No	11	5	16

Most students found the notebooks quite convenient to use. Few students had suggestions for improvement, but of those who made suggestions, all recommended a slimmer and more compact notebook.

Within the RIT group, where two hearing students took notes for a single deaf student, they were encouraged to exchange the third copy of their notes with each other. Table 6 indicates the relative number who did so, and whether they found this helpful.

Table 6. The exchange of notes by hearing notetakers			
Have you been exchanging notes with another hearing notetaker in your class using the same style notebook?	RIT	Student Rhodes	Total
(a) Yes	22	0	22
(b) No	18	14	32
If "yes", have you found this extra set of notes useful to you?			
(a) Yes	17 ¹	0	17
(b) No	8	0	8

The precise number of deaf students who had two or more hearing notetakers in a given class was not determined. Accordingly, some of those hearing students who reported that they did not exchange their notes with a fellow hearing notetaker may have been unable to do so because they were the only hearing student in the class who was taking notes for the deaf students. However, where notes were exchanged they were perceived as useful by the majority of those who responded.

The hearing notetakers were asked to respond to the statement, "Please comment on the general notetaking procedures, suggesting ways of improving the procedure if any occur to you".

With few exceptions the notetakers made no criticism of the notebooks themselves. Some felt the second notetaker was a waste of time. Others felt it helped them in their course to have a second set of notes to which to refer.

The most frequently expressed statement was that the system had forced the student to take better notes, resulting in considerable benefit to him.

Some stated that they considered it a privilege to be able to be of some help to their deaf classmates. However, two expressed concern because deaf students for whom they were taking notes seemed to take the service for granted. One commented that a deaf student began to miss classes for no valid reason but still expected his notes. Another notetaker expressed resentment because of an incident when, immediately after class he had given the deaf student his notes, and the deaf student threw them in the wastebasket. That most hearing notetakers felt the service was appreciated remains evident from the information contained in Table 4.

In summary, from the vantage point of the hearing notetaker, the system appears to be quite feasible.

(e) Evaluation of the System by Deaf Students

A total of 66 deaf students at RIT were asked to complete a separate questionnaire. Of the 66, 36 responded, representing a 55 percent return. The total number of deaf students at Rhodes School who had hearing notetakers was not known. Eight responded to the questionnaire.

The deaf students were asked if they were satisfied with the notetaking procedure. Table 7 gives their responses.

Table 7. Satisfaction of deaf students with procedure			
Are you satisfied with the present procedure for notetaking?	RIT	Student Rhodes	Total
(a) Yes	22	8	30
(b) No	12	0	12

Approximately 65 percent of the deaf RIT students and all the Rhodes students expressed satisfaction.

A followup question asked students who were not satisfied with the procedure to state why not. Invariably, the dissatisfactions were with the contents of the notes. Most of those who were dissatisfied felt that the notes were not sufficiently detailed. One made the comment that the usefulness of the notes is largely a function of the class, and that technical courses are more difficult to take good notes in.

The deaf students were asked whether they in fact used the notes for study and review. Their answers are recorded in Table 8

Table 8. Actual use of notes by deaf students			
	RIT	Student Rhodes	Total
Have you used the notes from the "NTID notebook" for study and review?			
(a) Yes	34	7	41
(b) No	2	1	3

It is evident that the notes serve a study and review purpose for a large majority of the deaf students, even by most of those who are not fully satisfied with the system.

The deaf students were asked whether the notes were clear. Responses are indicated in Table 9.

Table 9. Clarity of Notes			
	RIT	Student Rhodes	Total
Are the notes clear?			
(a) Yes	21	7	28
(b) No	7	0	7

The item had some ambiguity, since clarity could be interpreted as meaning either legibility or comprehensibility. It is likely that most of the students would interpret this as legibility. If that is so, then poor handwriting on the part of the hearing notetaker does not pose a major problem for most of the deaf students.

The deaf students were asked whether they prefer two hearing notetakers or whether one is sufficient. Table 10 presents the results of this question.

Table 10. Preference for one or more than one notetaker			
	RIT	Student Rhodes	Total
Do you find an extra set of notes helpful or would one set of notes be enough?			
(a) Two are better than one	28	3	31
(b) One is enough	7	5	12

The majority of the RIT students expressed a preference for more than one set of notes per course, while five of the eight high school (Rhodes) students apparently tended not to think two sets were important. Again, this probably reflects the relative importance attached to notes by college and high school level students.

The deaf students were asked to comment on whether their hearing notetaker seemed happy to provide this help. Responses of the deaf students are indicated in Table 11.

Table 11. Feelings about whether hearing classmates are happy to take notes			
	RIT	Student Rhodes	Total
Do you feel your hearing classmate who takes notes for you is happy to do this for you?			
(a) Yes	26	6	32
(b) I think he would rather not	5	2	7

The responses of the deaf students were in close agreement with those of the hearing students, most of whom indicated they would be quite willing to continue to take notes for deaf students.

Deaf students were asked whether they would prefer to find their own notetakers or to enlist the aid of the instructor in locating one. Their responses are indicated in Table 12.

Table 12. Preference of deaf student in locating notetakers			
	RIT	Student Rhodes	Total
Would you prefer to find your own notetaker in class or ask the instructor to do it for you?			
(a) Prefer to find my own notetaker in class	14	0	14
(b) Ask the instructor to do it for me	21	8	29

Most deaf students, particularly those at the high school level, would apparently prefer that the instructor assist in locating a notetaker rather than do it themselves.

The deaf students were invited to make some general critical comments and suggestions regarding the total process. Several noteworthy comments were made. In general, their comments were similar to those they made earlier in the questionnaire. It is evident that different students have different preferences, e.g., some prefer to borrow the instructor's personal notes. To be useful to all deaf students, the notetaking procedures should be flexible. However, a major service will be rendered the deaf student if the instructor periodically checks with the deaf student to be sure the deaf student is receiving comprehensible notes.

5 Closing Comments

The direct results of this investigation, together with discussions with NTID and RIT colleagues who are accumulating experience in providing an educational service to deaf students themselves, and other research in progress at NTID, all confirm the heavy dependence of the deaf student upon the printed or written word for learning. Good class notes are virtually indispensable to him.

This investigation has evaluated and established the general feasibility of one approach to the notetaking process within both the secondary and post-secondary setting. Undoubtedly there are others which the resourceful and interested instructor, together with the deaf student and hearing peers, can devise.

Perhaps the most salient fact to emerge from this investigation is that many hearing students are prepared to volunteer to share their notes with the deaf student.

The selection of the notetaker is very important within the process. An excellent student may not be the best notetaker for the deaf student. The single most important criterion seems to be the detail the hearing student puts into his notes.

But this is a three way activity, depending not only on an interested instructor and notetaker, but on a thoughtful and appreciative deaf student. The deaf student should be aware that whether or not the notes are helpful to him, his notetakers and instructor are extending themselves for him. As a courtesy, he should express appropriate appreciation to them.

Several appendices follow. The first is a statement of suggested guidelines and procedures for the instructor. The second is a statement of suggested guidelines to the hearing notetaker who shares his notes with a deaf student. The third is a statement to deaf students who are being aided by hearing notetakers. The instructor should feel free to reproduce any of these statements for distribution to the deaf student and a hearing notetaker.

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Appendix A

National Technical Institute for the Deaf
Rochester Institute of Technology
Rochester, New York

To the Instructor With a Deaf Student in His Class

The hearing impaired student in your class is as ready to learn as his hearing classmates. As teachers we rely substantially on voice to transmit information. The hearing impaired student must depend upon vision to absorb information which is available to the hearing student through sound.

Because he may not pick up as much information in class as your hearing students, good notes are indispensable to him. Yet because he may not be picking up as much as the hearing student in class, and because of his particular need to attend visually to you the instructor, he has difficulty in maintaining good notes.

The following suggestions are easily implemented and will be appreciated by your deaf student.

1. Prior to your first class, ask the hearing impaired student if he would like you to help him locate two hearing classmates who will share their notes with him. If so, give him a copy of Appendix C.

2. At the beginning of your first class period, explain to the class the need for volunteer notetakers, (Appendix B), and ask for two volunteers who consider themselves good notetakers. A little urging may be necessary because of the natural reticence of students.

3. Distribute the NTID notebooks to the two volunteer notetakers and suggest that they make a third copy of their notes and exchange them with each other. Many hearing notetakers find this valuable. Give them each a copy of Appendix B.

4. Briefly explain how the notebook is used, demonstrating that three (or two) pages are placed over the flap, and that at the end of the class they should give the second copy to the hearing impaired student.

5. Every two or three weeks, check with the hearing impaired student to assure that the procedure is working satisfactorily.

6. In the event that there are several deaf students in your class, you may wish to select only one hearing notetaker for each deaf student, or even one hearing notetaker for two or more deaf students. This should be a flexible system, permitting you to make any arrangement which assures the deaf student one or more useful sets of notes.

Appendix B

National Technical Institute for the Deaf
Rochester Institute of Technology
Rochester, New York

To the Hearing Student Taking Notes for a Deaf Classmate

We depend heavily on hearing for learning in the classroom setting. Separated from meaningful sound, the hearing impaired student must depend largely on seeing to profit from instruction. Lipreading, or use of a hearing aid, by no means guarantees that he picks up all you obtain through your intact hearing. Consequently he is more dependent on good class notes.

He appreciates the assistance you have offered him in sharing your notes. It will assist him greatly if you will observe the following suggestions. These suggestions should also help you in developing better notes for your own study and review.

Suggestions for developing good notes

1. Date the first page of your notes each class period. Number each page.
2. Write legibly.
3. Take notes as accurately as possible.
4. Identify and record all the principal points made by the instructor.
5. Record the secondary points made by the instructor.
6. Write in sufficient detail so that the notes have meaning without additional explanation.
7. Define difficult concepts and unfamiliar key words.
8. Organize the note content in logical sequence. Use headings and subheadings where possible.
9. Record all references, assignments, and special notices accurately and in detail.

Appendix C

National Technical Institute for the Deaf
Rochester Institute of Technology
Rochester, New York

To the Deaf Student with Hearing Notetakers

The students who are taking notes for you have volunteered to help you in class by sharing their notes with you. We know you appreciate their help. They do not expect money for this service. All they ask is that you appreciate their help. A simple "thank you" after each class will let them know.

Everyone takes notes differently. If their notes are not clear to you, don't blame the notetakers. Tell your instructor in private about your problem. He may be able to help you without hurting the hearing notetaker's feelings.

Remember that good notes alone will not get you good grades. Don't stay away from classes just because someone is taking notes for you. The notetaker may soon stop taking notes for you if you do.

We hope this notetaking system will be helpful to you. Best wishes in your course.

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